

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WOODY RESIDUE TREATMENT

(Ac.)

CODE 384

DEFINITION

The treatment of residual woody material that is created due to management activities or natural disturbances.

PURPOSE

- Reduce hazardous fuels
- Reduce the risk of harmful insects and disease
- Protect/maintain air quality by reducing the risk of wildfire
- To improve access for management purposes
- Improve access to forage for livestock and wildlife
- Develop renewable energy systems
- Enhance aesthetics
- Reduce the risk of harm to humans and livestock
- Improve the soil organic matter
- Improve the site for natural or artificial regeneration.

CONDITIONS WHERE PRACTICE APPLIES

On all lands, except active cropland, where woody residue requires treatment.

CRITERIA

General Criteria Applicable to All Purposes

The condition and extent of residual woody material shall determine the treatment method selected based on the operator's purpose.

Treatment methods (i.e. piling and burning, chipping, lop and scatter, off-site removal, crushing, broadcast burning) will achieve

landowner objectives while adequately protecting land and water resources.

Care shall be taken to minimize injury to or function of the residual plant communities.

Timing of treatment shall coincide with intended purpose(s) and minimize impact on other resources.

Any broadcast burning activities shall comply with the Oklahoma NRCS Prescribed Burning (338) standard.

Any residual woody material left on the site after treatment will not present an unacceptable fire, safety, environmental, or pest hazard. Such remaining material will not interfere with the intended purpose or other planned management activities.

Treatment of woody residue includes methods or combinations of methods such as the following:

Piling and Burning – Piling is placing, laying, heaping or stacking of woody residue into piles to facilitate intended burning. Burning is igniting piled woody residue under prescribed conditions to reduce the amount and continuity of fuels. Build small piles and place them on existing roads, disturbed areas, in natural openings and away from trees to avoid heat damage to residual trees, their roots and underlying soil. Piling often is by hand on steeper slopes and other areas inaccessible to heavy equipment. When machine piling or windrowing, a “brush rake” (blade with tines) will minimize pushing surface soil into the pile. Synthetic materials (e.g., old tires, petroleum products) will not be incorporated into the piles. Piles will be burned when they are dry (usually 6 months after being cut) and at a time when it can be conducted in a safe manner. All burning will comply with a Prescribed Burning Plan and will meet local and state burning regulations. Unburned piles can

serve as nesting and escape cover for wildlife. This method is suited to areas with adequate spacing between residual trees or areas with few or no residual trees.

Chipping – This method includes the mechanical conversion of slash to wood chips and chunks of varying sizes to distribute on site or utilize offsite as mulch, woody biomass fuel or pulp for paper products. Machinery shall be operated to minimize bark damage to residual trees. For safety purposes, humans and domestic animals must be excluded from areas being treated by equipment that flails and throws chips and chunks. Chip piles will not exceed 4-5 feet in height, except when stockpiling on a landing. A large decaying chip pile may spontaneously combust, starting a fire. Chipped material shall be spread out to a fine layer (less than 2 inches in depth) in close contact with the soil.

Lopping and Scattering – Lopping is the cutting of limbs, branches, treetops, small diameter trees, or other woody plant residue to within 2 feet of the ground. Scattering is the spreading of lopped woody residue evenly over the ground, so that the remaining woody residue will lie close to the ground. Over time, the lopped woody residue will compress. This method is suited to areas with lower woody residue accumulations and to reduce “ladder fuels” (those that can carry fire up into the canopy).

Removal – Woody residue is lifted or pushed, and taken away from a treated area in order to utilize the material, or dispose of it safely. Minimize soil damage/loss by using a brush rake, if pushing woody debris into piles. This method is suited to small areas with higher woody residue accumulations where other methods may not sufficiently reduce undesired material.

Crushing – This method involves the use of heavy ground-based equipment that crushes/grinds woody residue to a depth not exceeding 18 inches above ground. The closer crushed material is to the forest floor, the quicker decomposition occurs. This method commonly occurs when harvest or thinning equipment drives over woody slash created during the operation.

Broadcast Burning – This method consumes and alters woody residue by prescribed fire to a point of minimizing the risk of wildfire and is suited primarily to areas with few to no residual trees. Scatter woody residue away from any

remaining desired trees in order to protect them during prescribed fire. If large amounts of woody residue remain, burn during cooler, wetter periods when the slash is damp. All burning will comply with a Prescribed Burning Plan and will meet local and state burning regulations.

Additional Criteria Applicable to Reduce Hazardous Fuels

Reduce the amount of fuels to an acceptable level by controlling height, size, amount and distribution through methods such as piling and burning, chipping, or removal.

Additional Criteria to Reduce the Risk of Harmful Insects and Disease

The degree, intensity and timing of treatment shall consider the characteristics of harmful insects or diseases to enhance the effectiveness of control. Refer to the Oklahoma NRCS Integrated Pest Management (595) standard for guidance.

Additional Criteria to Protect/Maintain Air Quality by Reducing the Risk of Wildfire

Activities will be consistent with established regulations and guidelines for PM10 and PM2.5 emissions, ozone precursors (NOx and VOCs), as well as smoke and fugitive dust, and state and local permit requirements.

Additional Criteria to Improve Access to Forage for Livestock and Wildlife

Woody material shall be piled, contour windrowed, or removed sufficiently to allow access by livestock and wildlife, and to maximize forage growth.

Additional Criteria to Develop Renewable Energy Systems

Removal of woody material shall not be detrimental to the site and will adequately protect soil and water resources. Adequate woody material will be left to maintain or improve nutrient and organic matter cycling.

Additional Criteria to Enhance Aesthetics

Woody material left on the site that is scattered, windrowed or piled will be further treated to meet client objectives and any state or local requirements for aesthetics and visual resources.

Additional Criteria to Reduce the Risk of Harm to Humans and Livestock

Woody material left on the site that is scattered, piled or windrowed will be further treated to meet client objectives and any state or local requirements for safe use of the area.

Additional Criteria to Improve Soil Organic Matter

Woody material will be of a size and closeness to soil to accelerate in decomposition.

Additional Criteria to Improve the Site for Natural or Artificial Regeneration

Woody material will be treated to complement treatments specified in Oklahoma NRCS Tree/Shrub Site Preparation (490) standard.

CONSIDERATIONS

When feasible, consider chipping, shredding, off-site disposal, bio-fuel composting, or other techniques in lieu of burning.

When determining method and timing of woody material treatment, consider air quality regulations, burning regulations, available resources, ability to use woody biomass and future regeneration needs.

Consider effects on soil carbon when off-site removal of woody material is to occur.

Consider wildlife habitat needs (e.g. large downed wood, snags, brush piles, etc.) when planning the timing of and performing treatment.

Consider establishing artificial habitat (e.g. bat boxes, nesting platforms, rock piles, etc.) where needed.

Consider pollinator needs when planning and performing treatment.

Consider the beneficial and other effects on cultural resources, and threatened and endangered species, natural areas, and wetlands.

Consider soils, site factors and timing of application to avoid soil compaction, rutting, or damage to the soil surface layer.

Avoid piling or moving slash into riparian areas, floodplains or wetland.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Monitor populations and the potential of damage to site resources by harmful pests and take controlling actions as necessary.

Access by vehicles or people will be controlled during treatment for safety. See Oklahoma NRCS Access Control (472) standard.

Monitor vegetation growth. Unwanted vegetation or excessive re-growth may occur, requiring treatment.

REFERENCES

Ecological Restoration Institute 2010. Treating Slash. Northern Arizona University. Flagstaff, Arizona. <http://www.eri.nau.edu/en/information-for-practitioners/treating-slash>

Bennett, M. and Fitzgerald, S., 2008. Reducing Hazardous Fuels on Woodland Property: Disposing of Woody Material. Oregon State Extension publication EC-1574-E. <http://extension.oregonstate.edu/catalog/pdf/ec/ec1574-e.pdf>